

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>M0656/7014WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 96/ 17310</b>	International filing date( <i>day/month/year</i> ) <b>30/10/1996</b>	(Earliest) Priority Date ( <i>day/month/year</i> ) <b>30/10/1995</b>
Applicant <b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☒ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☒ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. 3

☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 96/17310

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/60 C12N9/88 C08B37/10 A61K38/51 C12N15/70  
C12N1/21

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C08B A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93 08289 A (MASSACHUSETTS INST TECHNOLOGY) 29 April 1993	1,6-11, 14-17, 22,23
Y	see the whole document, especially page 4, lines 3-16 and page 19, lines 10-17	2-5, 18-21
A		12
Y	--- ABSTRACTS OF PAPERS FROM THE FOURTH CHEMICAL CONGRESS OF NORTH AMERICA, vol. 202, no. 1, August 1991, NEW YORK, page a56 XP002026381 LECKBAND D. ET AL.: "Characterization of the active site of heparinase." see abstract --- -/--	2-5, 18-21

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

7 March 1997

Date of mailing of the international search report

12.03.97

Name and mailing address of the ISA

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 396 762 A (LANGER ROBERT S ET AL) 2 August 1983 see the whole document, especially col.2, lines 38-47 and examples ---	13
A	HIGUCHI R.: "Recombinant PCR." 1990, ACADEMIC PRESS LIMITED, LONDON XP002026386 cited in the application see the whole document ---	1-12, 14-23
A	ARTERIOSCLEROSIS, vol. 9, no. 1, 1989, pages 21-32, XP000645120 CARDIN A. AND WEINTRAUB H.: "Molecular modeling of protein-glycosaminoglycan interactions." cited in the application see the whole document ---	6-8
A	CRC CRITICAL REVIEWS IN BIOCHEMISTRY, vol. 8, no. 2, 1980, pages 119-174, XP000645192 KRETSINGER R. ET AL.: "Structure and evolution of calcium-modulated proteins." cited in the application see figure 1 ---	9-11
A	LEWIN B.: "GENES V" 1994, OXFORD UNIVERSITY PRESS XP002026390 see page 13, last paragraph ---	12
P,X	BIOCHEMISTRY, vol. 34, 7 November 1995, pages 14441-14448, XP002026383 SASISEKHARAN R. ET AL.: "Heparinase I from Flavobacterium heparinum: The role of the cysteine residue in catalysis as probed by chemical modification and site-directed mutagenesis." see the whole document ---	1-11, 13-23
P,X	BIOCHEMISTRY, vol. 35, no. 21, 28 May 1996, pages 6846-6852, XP002026384 GODAVARTI R. ET AL.: "Heparinase I from Flavobacterium heparinum. Identification of a critical histidine residue essential for catalysis as probed by chemical modification and site-directed mutagenesis." see the whole document ---	1-11, 13-23
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>J. BIOL. CHEM., vol. 271, no. 6, 9 February 1996, pages 3124-3131, XP002026385 SASISEKHARAN R. ET AL.: "Heparinase I of Flavobacterium heparinum: Mapping and characterization of the heparin binding domain." see the whole document -----</p>	<p>1-11, 13-23</p>

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/17310

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9308289 A	29-04-93	CA 2122004 A EP 0610408 A JP 7503608 T	29-04-93 17-08-94 20-04-95
US 4396762 A	02-08-83	NONE	